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**SCIENTIFIC AND PRACTICAL SUBSTANTIATION OF DIRECTIONS OF MUTUAL COOPERATION OF HIGHER EDUCATIONAL INSTITUTIONS WITH EMPLOYERS OF PHARMACEUTICAL SECTOR OF HEALTH CARE INDUSTRY**

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**Мета** полягає у дослідженні, узагальненні та розробленні напрямів взаємного співробітництва закладу вищої освіти (ЗВО) з роботодавцями фармацевтичного сектору галузі охорони здоров'я, що надасть можливість здійснювати підготовку конкурентоспроможних компетентних фахівців відповідно до вимог ринку праці.

**Методи:** Для досягнення мети використано методи наукового аналізу, зокрема узагальнення, порівняння, системний та логічний методи. Для наочного представлення узагальнених результатів експертного опитування застосовано графічний аналіз.

**Результати:** Обґрунтовано науково-практичні підходи до визначення напрямів взаємного співробітництва ЗВО з роботодавцями фармацевтичного сектору галузі охорони здоров'я. Наведено сучасні напрями співробітництва закладу вищої освіти з роботодавцями, які сприяють удосконаленню організаційно-методичних засад взаємодії, оптимізації змісту освіти та освітнього процесу, підвищенню якості практичної підготовки та працевлаштування випускників, розвитку науково-дослідної діяльності та інноваційної інфраструктури. Систематизовано форми співпраці Національного фармацевтичного університету (НФаУ) з аптечними закладами та фармацевтичними підприємствами, впровадження яких дозволить підвищити якість практичної підготовки фахівців фармації.

**Висновки:** На підставі результатів експертного опитування фахівців фармації визначено, що найбільш вагомими мотивами співпраці Національного фармацевтичного університету з роботодавцями фармацевтичного сектору галузі охорони здоров'я є підготовка фахівців відповідно до потреб підприємств і доступ до кваліфікованих трудових ресурсів, а ефективними формами співробітництва – наставництво і тренінги. За результатами дослідження особливостей та форм співпраці авторами виконано їх систематизацію і визначено напрями взаємного співробітництва ЗВО з роботодавцями на прикладі НФаУ, реалізація яких сприяє підвищенню якості практичної підготовки майбутніх фахівців фармації та формуванню конкурентоспроможних випускників відповідно до вимог ринку праці.

**Ключові слова:** фармація, освіта, роботодавці, співробітництво, форми співпраці, практична підготовка, працевлаштування, ринок праці.

**1. Introduction**

In the context of the innovative development of the pharmaceutical sector in the field of health care, human resources are assimilated to the real needs of the labor market. In turn, the task of personnel policy is based on the principles of active position and social responsibility of employers.

According to the Center for the Development of Corporate Social Responsibility, the main barriers to the employment of graduates of universities are often low level of practical training, lack of work experience, inflated demands on salaries and prospects for career growth. In order to improve the level of practical training of graduates, it is advisable to establish effective interaction between universities and employers, as their cooperation in training specialists is an effective way to increase the competitiveness of youth in the labor market and, accordingly, reduce youth unemployment [1].

The first step should be to work out the mechanism of interaction of all participants in the educational process, aimed at achieving the final result: the quality of educational services – a competitive specialist – the welfare of society.

**2. Formulation of the problem in a general way, the relevance of the theme and its connection with important scientific and practical issues**

The cooperation of universities with employers is carried out on the conditions of social partnership and provides an opportunity to improve the training of specialists who meet the requirements of the labor market, to implement integrated methods and teaching methods for practical activities, to increase the level of practical training of applicants for higher education, to provide employment and the system of early adaptation of graduates to professional activities, and also contributes to the achievement of the long-term goals of the participants in the educational process and the labor market [2, 3]. Thus, the problem of research and improvement of existing forms of cooperation between universities and employers becomes of particular urgency and needs urgent resolution.

**3. Analysis of recent studies and publications in which a solution of the problem are described and to which the author refers**

The relevance of a particular area of research is corroborated by the Global Employment Employability

Ranking, which lists the most demanded types of collaboration between companies and universities [4]. Foreign scientists have researched the current state of cooperation between universities and employers in Croatia, and a comparative analysis of the situation in Poland and the UK has been carried out, the main results of which prove the urgency of the development and formation centres of innovative technology transfer at universities and employers level [5]. Some studies are devoted to the synthesis of the results of the assessment of cooperation between higher education institutions and employers on the example of Bulgaria, Poland, Hungary, Spain and other European Union countries, analysis of the participation of enterprises in the activities of university-business cooperation [6, 7], substantiation of directions of development of selection and selection practice graduates by employers in the UK [8]. Also, presented results of the study of the role of partnership between US industry and educational institutions aimed at reducing gaps interaction [9]. The effectiveness of the partnership between higher education institutions and business, which takes on many forms, such as transnational cooperation, consultancy services for small and medium-sized enterprises, professional development programs, graduate admission policies, is in line with regional priorities as well were shown [10].

A number of publications have been devoted to the improvement of the educational process on the basis of cooperation between universities and employers [11, 12], but the problem of complex study and definition of directions of mutual cooperation of universities by the example of the National University of Pharmacy and employers was not the subject of special study and generalization.

#### **4. The field of research considering the general problem, which is described in the article**

Modern challenges and requirements of the pharmaceutical market to the quality of the professional training of pharmaceutical specialists confirm the need for effective interaction of the universities with employers. At present, there is no mechanism for the integrated interaction of universities with employers, which promotes the improvement of the practical training of future specialists in pharmacy and the formation of competitive graduates in accordance with the requirements of the labor market. The expediency of scientific elaboration of the directions of solving the problem of cooperation between universities and employers in modern conditions, the limited research development of domestic researchers on the chosen topic has determined the relevance of the study.

#### **5. Formulation of goals (tasks) of article**

The aim is to study, synthesize and develop the areas of mutual cooperation of the universities with the employers of the pharmaceutical sector of the healthcare sector, which will enable the training of competitive competent professionals in accordance with the requirements of the labor market.

To achieve the purpose of the study, we formulated the main tasks: to determine the modern motives and forms of cooperation between NUPh and pharmacy institutions and pharmaceutical companies, to study the features and forms of cooperation, to systematize them and

to determine the directions of mutual cooperation of the universities with the employers.

#### **6. Presentation of the main research material (methods and objects) with the justification of the results**

The object of the study is the process of developing scientific and practical approaches to defining the areas of mutual cooperation of the universities with the employers of the pharmaceutical sector of the health industry. As a subject of the study, forms of cooperation between the universities and employers took place on the example of the National University of Pharmacy. The information base includes data from scientific and professional literature, the process of the quality management system at the National University of Pharmacy in order to provide links with the practice bases and authors' own research. Methods of scientific analysis, in particular, generalization, comparison, systematic, logical and graphical analysis are used to achieve the aim. During the formulation of conclusions and recommendations, the methods of descriptive and abstract modeling are used.

Cooperation between the university and employers is based on the principles of long-term mutually beneficial partnership and provides a number of benefits to all participants, including those with higher education, who ultimately gain access to quality educational services, professional skills and employment. The interests of the National University of Pharmacy are connected with the fulfilment of their usual functions - the provision of educational process and the mission of professional education in society - the preparation and upbringing of a harmoniously developed person who can find his place in life, become useful to society, confident that the profession is up to the needs of the labor market and provides a decent livelihood. In turn, employers receive benefits, including:

- selection of the best graduates in the university environment without the involvement of specialized agencies whose services are quite expensive;
- reducing the gap between employer expectations and the level of competence of graduates;
- assessment of the level of theoretical and practical training of applicants for a post;
- providing consulting services in shaping the directions of training for higher education applicants, etc. [13, 14].

The processes of globalization, inherent in the current stage of economic development, require the specialists of pharmacy to quickly adapt to the requirements of the labor market, which promotes conducting scientific and practical and career-forming measures involving the subjects of the pharmaceutical market. Since 2011, the NUPh has been developing a catalogue of employers, on the basis of which a single information base has been created containing a data bank of pharmaceutical manufacturers; pharmacy warehouses (bases), wholesalers, subsidiaries of foreign pharmaceutical companies; pharmacy establishments of different forms of ownership and management with the prospect of forming a bank of vacancies. In 2016, the Council of Employers was created and the Regulations on the Council of Employers [15] were developed, which allowed expanding the boundaries of interaction and deep-

ening the partnership between NUPh and the subjects of the pharmaceutical market [16, 17].

In order to identify the actual forms of cooperation between universities and employers, we conducted an expert survey of 119 respondents who are reliable assistants of the NUPh in terms of practical training and placement of applicants for higher education, have a pharmaceutical education and sufficient professional experience. To ensure the representativeness of the research and to confirm the consistency of expert assessments, we calculated the coefficient of concordance, which exceeds its critical values and thereby proves the consistency of the results.

We have processed the results of an expert survey aimed at identifying the motives that pharmacists are

guided in deciding on cooperation with universities. As shown in Fig. 1, 76.5 % of experts expect to receive a specialist trained according to the needs of enterprises, 71.1 % – access to skilled labor resources in terms of personnel famine. In the opinion of 70.6 %, the interaction with universities is part of the formation of a positive image of employers. The rest of the motives indicated in Fig. 1 were noted by less than half of the experts, that is, there is a certain divergence in the system of motives that employ employers in co-operation with educational institutions, which in turn requires the development of measures to stimulate and develop cooperation, including on the basis of social partnership, introduction of dual education, joint scientific and innovative activities, etc.

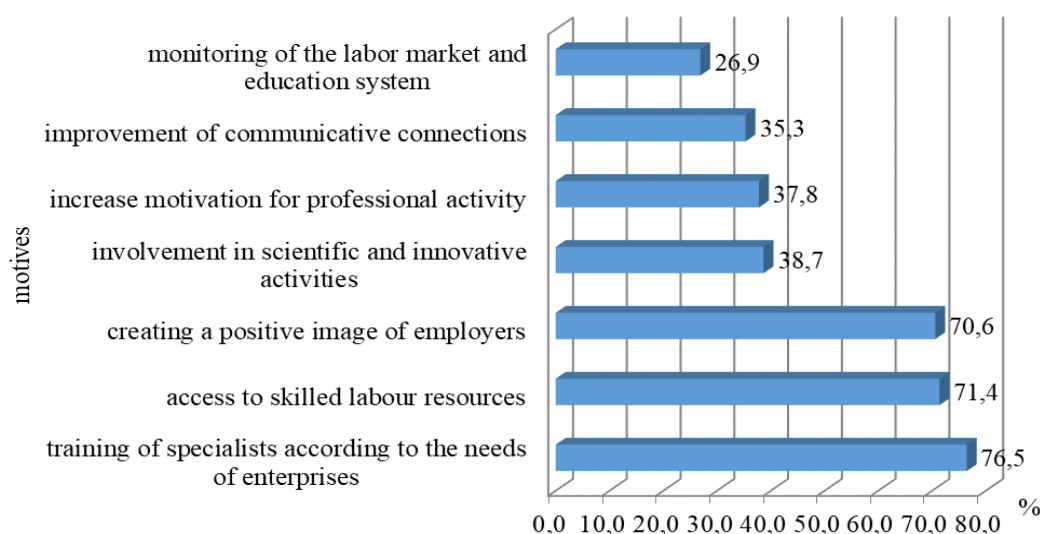


Fig. 1. Motives of cooperation of employers with the institution of higher education

At the next stage of the study, experts were asked to answer the questionnaire, which included questions about identifying forms of cooperation that, in their view, were effective for the development of cooperation between the higher education institution and employers. The obtained results are presented in Fig. 2. It has been established that the largest number of experts, 73.1 % consider the mentoring method (mentorship) as an effective form of co-operation. Among the respondents, 71.4 % prefer trainings, which can be carried out in the form of developing practical skills of sales, including telephone, team-building, presentations, job search technology, etc.

Another 67.2 % of experts see company presentations as a source of information about the place of practice, which in the future may become a place of employment, 66.4 % of experts consider it effective to conduct work placements.

It should be noted that such forms of cooperation as round tables and dialogue-meetings were marked by a significant number of experts (respectively 61.3 % and 57.1 %), which, in our opinion, can be explained by high interest of specialists in interaction with representatives of universities and with applicants higher education as a target audience. These forms are promising and aim to

exchange information and experience, establish direct contacts between participants, achieve common goals and solve common problems.

The open days at the enterprise and the fair of vacancies, which employers are attracted to, noted respectively 40.3 % and 53.8 % of the survey participants. The mentioned organizational arrangements for interaction between NUPh and employers develop for a long time and acquire new forms annually: from 2009 a conference is held on the results of practice involving practitioners from different regions of Ukraine, from 2011 – job vacancies, trainings on job search technology.

The formation of an innovative model of cooperation through practical training (practice, internship, employment) between leading pharmaceutical companies and NUPh was first tested in 2013. At present, the traditional form of cooperation is the involvement of practicing pharmacy representatives in conducting practical and seminars, as noted by 53.8 % of experts. For example, starting from 2015, employees of the enterprises are involved in the educational process for reading lectures (problem, binary, lecture disputes), holding practical and seminars on the basis of the university and enterprises under the direction of the lecturer of the department.

It is necessary to distinguish such an innovative form of cooperation as a competition of business projects and skills competitions (noted by 47.9% of experts),

which promotes attraction of investment funds for implementation of innovative ideas of applicants of higher education.

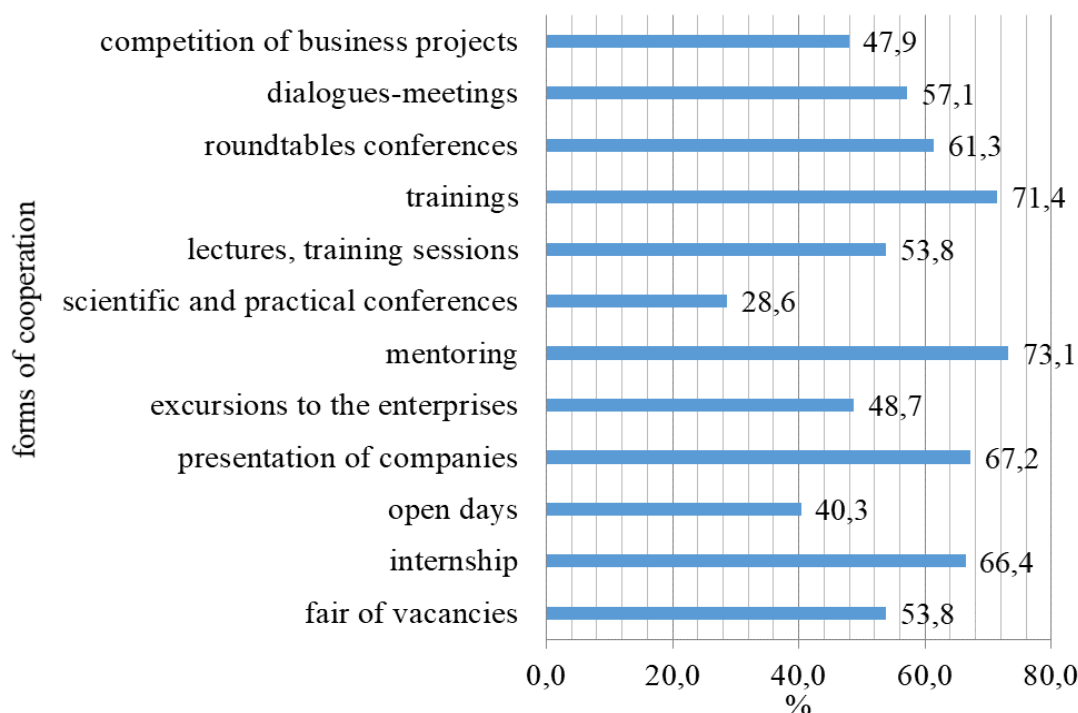


Fig. 2. Educational and career-forming forms of cooperation between the NUPh and the employers of the pharmaceutical sector of the healthcare industry

Taking into account the experience of interaction between NUPh and partners, we have worked out the modern directions of mutual cooperation of the institution of higher education with the employers of the pharmaceutical sector of healthcare, which can be used in the training system of the future specialist of pharmacy (Table 1). The proposed forms of cooperation are systematized in the following areas:

- improvement the content of education;
- optimization of the educational process;
- improving the quality of practical training and placement of graduates;
- research activities;
- development of innovative infrastructure;
- organizational and methodological aspects of interaction.

Table 1  
Directions of mutual cooperation of the institution of higher education with employers of the pharmaceutical sector of health care

Directions of mutual cooperation	Forms of cooperation
1	2
Improvement the content of education	<ul style="list-style-type: none"> <li>• employers' involvement in identifying up-to-date specialties / educational programs;</li> <li>• attracting employers to the content of educational programs in order to adapt them to the needs of the labor market;</li> <li>• formation of requirements for competences of the future specialist of the industry, which are demanded by the labor market;</li> <li>• participation in the development of content of the variable component of the curriculum;</li> <li>• attracting employers to author groups for the preparation of textbooks, manuals;</li> <li>• joint development and implementation of corrective actions on the content of training and work plans;</li> <li>• participation in the assessment of the quality of graduates training (sociological research)</li> </ul>

Continuation of Table 1

1	2
Optimization of the educational process	<ul style="list-style-type: none"> <li>• the functioning of the university classes at the chemistry shops and pharmaceutical companies;</li> <li>• formation of conditions for the passing of production (training) practices and internships by applicants of higher education; providing skilled management;</li> <li>• contract-targeted training of specialists on the orders of employers (financial participation of employers in the training of specialists for their needs);</li> <li>• motivation of higher education graduates (creation of a scholarship fund, grant awarding);</li> <li>• involvement of employers' representatives in the educational process (lectures, practical classes / seminars, management of course and graduation papers, participation in state certification of graduates, etc.);</li> <li>• formation of topics of course and graduation qualification (diploma, master's degree) work taking into account their relevance for employers;</li> <li>• implementation of practical-oriented coursework and graduation (diploma, master's degree) works at the request of employers;</li> <li>• introduction and organization of training programs at the workplace of scientific and pedagogical workers and employees of NUPh on the basis of employers</li> </ul>
Improvement the quality of practical training and placement of graduates	<ul style="list-style-type: none"> <li>• formation of a united information database of subjects of the pharmaceutical market for planning of all types of practices with the possibility of further employment of graduates;</li> <li>• monitoring and forecasting the need for specialists in the pharmaceutical labor market at the local, regional, national levels;</li> <li>• informing of available vacancies and placement of resume of higher education students on the information portal of the institution of higher education (site of the institution of higher education, sites of structural units);</li> <li>• facilitating permanent and temporary employment (for example, at the time of vacations, during extracurricular time) for the employment of higher education graduates in pharmacies and pharmaceutical companies;</li> <li>• facilitating the implementation of student entrepreneurship initiatives and business projects based on employers;</li> <li>• assistance in writing resume, interview preparation, testing;</li> <li>• development of professional career planning technology</li> </ul>
Research activities	<ul style="list-style-type: none"> <li>• implementation of joint research work with employers, including student science;</li> <li>• use of the material and technical base of employers for scientific research;</li> <li>• implementation of joint research on the profile of the industrial activities of employers;</li> <li>• implementation of scientific research results into practical activities;</li> <li>• carrying out scientific work by employers' employees under the leadership of leading scientists of the National University of Pharmacy</li> </ul>
Development of innovative infrastructure	<ul style="list-style-type: none"> <li>• creation of joint educational, production and research units at enterprises (business incubators, technology parks, venture companies, etc.);</li> <li>• creation of joint high-tech companies;</li> <li>• modernization of production and training equipment for advanced technologies, creation of laboratories;</li> <li>• target contributions for the development of the universities (endowments)</li> </ul>
Organizational and methodological aspects of interaction	<ul style="list-style-type: none"> <li>• coordination and development of interaction with employers;</li> <li>• introduction of representatives of employers to the Scientific Council of the NUPh;</li> <li>• the creation of the University of the Council of Employers as an advisory and consultative body;</li> <li>• creating a positive image of employers (placement of logos, preparation of presentation stands, publications about cooperation);</li> <li>• participation of employers in career guidance and engagement in professional forums;</li> <li>• conducting educational and career-setting activities</li> </ul>

Thus, the proposed directions of mutual cooperation of the university with employers are based on the principles of long-term partnership and are aimed at improving the quality of practical training and professional as a whole in accordance with the requirements of the modern labor market.

## 7. Conclusions from the conducted research and prospects for further development of this field

1. Identified the motives and forms of cooperation that, in the opinion of the employer's experts, are most important in implementing mutual cooperation between employers and universities as strategic partners

in order to improve the quality of higher pharmaceutical education.

2. The modern directions of mutual cooperation of higher education institution with employers, which can be used in the system of preparation of the future specialist of pharmacy in the following directions, are determined: improvement of the content of education; optimization of educational process; improving the quality of practical training and placement of graduates; research activity; development of innovation

infrastructure; organizational and methodological aspects of interaction.

3. In order to improve all aspects of mutual cooperation, it is expedient to conduct a survey of employers on the level of their satisfaction with the quality of practical training of applicants for higher education. The quality and effectiveness of the educational process will prove the demand for graduates in the labor market. Ultimately, a professional graduate career should be part of the universities ranking in the educational services market.

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